CONE DELFRED SUBDIVISION (PWS 2290020)
SOURCE WATER ASSESSMENT FINAL REPORT

December 4, 2002

State of Idaho
Department of Environmental Quality

Executive Summary

Under the Safe Drinking Water Act Amendments of 1996, all states are required by the U.S. Environmental Protection Agency to assess every source of public drinking water for its relative sensitivity to contaminants regulated by the Act. This assessment is based on a land use inventory of the designated source water assessment area and sensitivity factors associated with the well and aquifer characteristics.

This report, *Source Water Assessment for Cone Delfred Subdivision, Princeton, Idaho*, describes the public drinking water system, the boundaries of the zones of water contribution, and the associated potential contaminant sources located within these boundaries. This assessment should be used as a planning tool, taken into account with local knowledge and concerns, to develop and implement appropriate protection measures for this source. **The results should not be used as an absolute measure of risk and they should not be used to undermine public confidence in the water system.**

The Cone Delfred Subdivision drinking water system consists of one well. The well was installed in 1981, and the water system currently serves approximately 40 people throuth 19 connections.

Final susceptibility scores are derived from equally weighing system construction scores, hydrologic sensitivity scores, and potential contaminant/land use scores. Therefore, a low rating in one or two categories coupled with a higher rating in other categories results in a final rating of low, moderate, or high susceptibility. With the potential contaminants associated with most urban and heavily agricultural areas, the best score a well can get is moderate. Potential Contaminants/Land Uses are divided into four categories, inorganic contaminants (IOCs, i.e. nitrates, arsenic), volatile organic contaminants (VOCs, i.e. petroleum products), synthetic organic contaminants (SOCs, i.e. pesticides), and microbial contaminants (i.e. bacteria). As different wells can be subject to various contamination settings, separate scores are given for each type of contaminant.

In terms of total susceptibility, the well rated moderate for IOCs, VOCs, SOCs, and automatically high for microbials. System construction and hydrologic sensitivity are both moderate, and land use rated high for IOCs, VOCs, SOCs, and low for microbials. The automatically high ratings are due to detections of total coliform in the well. If not for the automatic rating, the well would have rated moderate for microbials.

No VOCs or SOCs have ever been detected in the well. Trace concentrations of IOCs have been detected, but significantly below maximum contamination levels (MCLs) as set by the Environmental Protection Agency (EPA). For instance, trace amounts of barium and fluoride were detected in the well. As the Cone Delfred Subdivision water system exists within a county of medium nitrogen fertilizer use, high herbicide use, and high ag chemical use, nitrate contamination may become a water quality issue. At the present time however, nitrate has only been detected in the well in concentrations of less than 0.5 parts per million (ppm), significantly below the MCL of 10 ppm. Total coliform has been detected in the distribution system three times (February 1999, July 1999, and January 2000), and in the well four times (March 1996, May 1996, August 1997, and December 1999).

This assessment should be used as a basis for determining appropriate new protection measures or re-evaluating existing protection efforts. No matter what ranking a source receives, protection is always important. Whether the source is currently located in a “pristine” area or an area with numerous industrial and/or agricultural land uses that require surveillance, the way to ensure good water quality in the future is to act now to protect valuable water supply resources. If the system should need to expand in the future, new well sites should be located in areas with as few potential sources of contamination as possible, and the site should be reserved and protected for this specific use.

For the Cone Delfred Subdivision, drinking water protection activities should first focus on correcting any deficiencies outlined in the sanitary survey (an inspection conducted every five years with the purpose of determining the physical condition of a water system’s components and its capacity). Actions should be taken to keep a 50-foot radius circle clear of all potential contaminants from around the wellhead. Any contaminant spills within the delineation should be carefully monitored and dealt with. As much of the designated protection areas are outside the direct jurisdiction of the Cone Delfred Subdivision, collaboration and partnerships with state and local agencies, and industry groups should be established and are critical to the success of drinking water protection. In addition, the well should maintain sanitary standards regarding wellhead protection.

Due to the time involved with the movement of ground water, drinking water protection activities should be aimed at long-term management strategies even though these strategies may not yield results in the near term. For assistance in developing protection strategies please contact the Lewiston Regional Office of the Idaho Department of Environmental Quality or the Idaho Rural Water Association.

SOURCE WATER ASSESSMENT FOR CONE DELFRED SUBDIVISION, PRINCETON, IDAHO

Section 1. Introduction - Basis for Assessment

The following sections contain information necessary to understand how and why this assessment was conducted. **It is important to review this information to understand what the rankings of this assessment mean.** Maps showing the delineated source water assessment area and the inventory of significant potential sources of contamination identified within that area are attached. The list of significant potential contaminant source categories and their rankings used to develop the assessment is also included.

Background

Under the Safe Drinking Water Act Amendments of 1996, all states are required by the EPA to assess every source of public drinking water for its relative susceptibility to contaminants regulated by the Safe Drinking Water Act. This assessment is based on a land use inventory of the delineated assessment area and sensitivity factors associated with the wells and aquifer characteristics.

Level of Accuracy and Purpose of the Assessment

Since there are over 2,900 public water sources in Idaho, there is limited time and resources to accomplish the assessments. All assessments must be completed by May of 2003. An in-depth, site-specific investigation of each significant potential source of contamination is not possible. **Therefore, this assessment should be used as a planning tool, taken into account with local knowledge and concerns, to develop and implement appropriate protection measures for this source. The results should <u>not be</u> used as an absolute measure of risk and they should <u>not be</u> used to undermine public confidence in the water system.**

The ultimate goal of the assessment is to provide data to local communities to develop a protection strategy for their drinking water supply system. The Idaho Department of Environmental Quality (DEQ) recognizes that pollution prevention activities generally require less time and money to implement than treatment of a public water supply system once it has been contaminated. DEQ encourages communities to balance resource protection with economic growth and development. The local community, based on its own needs and limitations, should determine the decision as to the amount and types of information necessary to develop a drinking water protection program. Wellhead or drinking water protection is one facet of a comprehensive growth plan, and it can complement ongoing local planning efforts.

Section 2. Conducting the Assessment

General Description of the Source Water Quality

The Cone Delfred Subdivision drinking water system consists of one well. The well was installed in 1981, and the water system currently serves approximately 40 people throuth 19 connections.

No VOCs or SOCs have ever been detected in the well. Trace concentrations of IOCs have been detected, but significantly below MCLs as set by the EPA. For instance, trace amounts of barium and fluoride were detected in the well. As the Cone Delfred Subdivision water system exists within a county of medium nitrogen fertilizer use, high herbicide use, and high ag chemical use, nitrate contamination may become a water quality issue. At the present time however, nitrate has only been detected in the well in concentrations of less than 0.5 ppm, significantly below the MCL of 10 ppm. Total coliform has been detected in the distribution system three times (February 1999, July 1999, and January 2000), and in the well four times (March 1996, May 1996, August 1997, and December 1999).

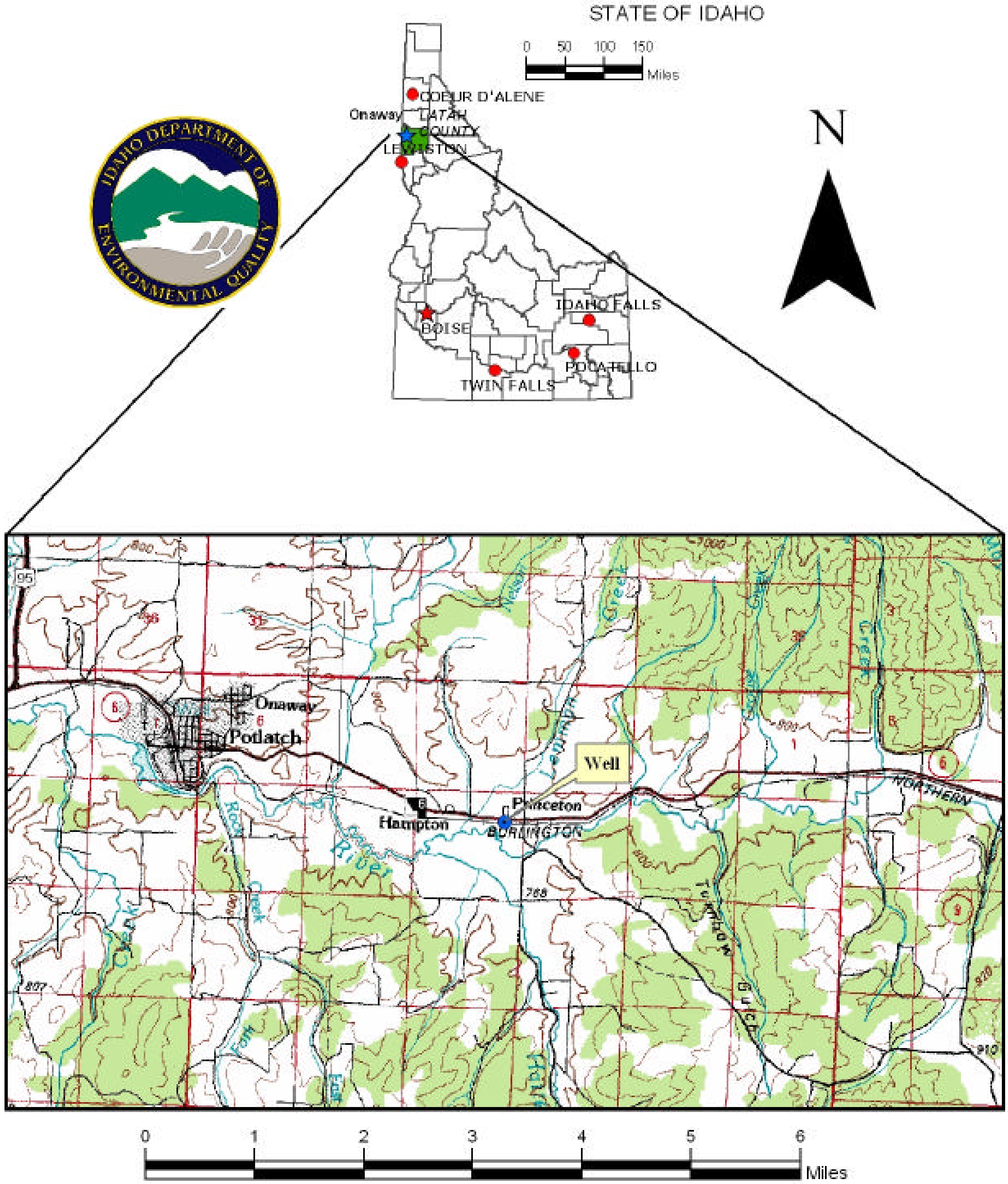
Defining the Zones of Contribution – Delineation

The delineation process establishes the physical area around a well that will become the focal point of the assessment. The process includes mapping the boundaries of the zone of contribution into time-of-travel (TOT) zones (zones indicating the number of years necessary for a particle of water to reach a well) for water in the aquifer. DEQ contracted with the University of Idaho to perform the delineations using a refined computer model approved by the EPA in determining the 3-year (Zone 1B), 6-year (Zone 2), and 10-year (Zone 3) TOT for water in the vicinity of the Cone Delfred Subdivision wells. The computer model used site specific data, assimilated by the University of Idaho from a variety of sources including operator input, local area well logs, and hydrogeologic reports (detailed below).

The conceptual hydrogeologic model for the six public water systems in the Potlatch, Idaho area is based on interpretation of available well logs and published geologic maps of the area. The bedrock geologic map of the Potlatch quadrangle at a scale of 1:24,000 (Duncan, 1998) covers the locations of the Cone Delfred Subdivision, Onaway, and the Y Trailer Court source wells. To the east, geologic information for Delfred Cone, Bennett Lumber, and Hoodoo Harvard Water and Sewer source wells was obtained from the 1:250,000 geologic map (Rember and Bennett, 1979). Well log data indicate that the hydrogeology of the area is complex and very little information is available on the local hydrogeology.

The eleven source wells of the six public water systems included in this study are located along an approximately 11 mile stretch of the Palouse River valley. The ground elevation is approximately 2600 feet above mean sea level (msl) at the eastern end, near the town of Harvard, and approximately 2480 feet at the western end near the Cone Delfred Subdivision. Well logs are available for all but two source wells (Potlatch "Potlatch Well" and Potlatch "Ball Field Well"). Those two wells are assumed to have a similar hydrogeology as Potlatch "Well #4" due to their proximity. Well logs for source wells and the test points are used to interpret the hydrogeology. The wells are completed in a variety of geologic units that do not appear to be laterally continuous in the valley. Local geology consists of Precambrian basement rock (granitic, metamorphic, and metasedimentary units) overlain by the Columbia River Basalt Group (CRBG) and interbedded sediments, which in turn are overlain by Palouse loess and alluvial sediments. The CRBG consists of (from oldest to youngest) the Grande Ronde Formation, the Wanapum Formation, and the Onaway basalts of the Saddle Mountain Formation.

FIGURE 1- GEOGRAPHIC LOCATION OF CONE DELFRED SUBD WELL, PWS 2290020



Although the Wanapum and Grande Ronde formations are hydrologically distinct in the Moscow-Pullman Basin approximately 15 miles to the south, the available data do not justify a similar distinction in the Potlatch area. This is due in part to the laterally discontinuous nature of the units and the difficulty in interpreting driller's well logs and static water level data. Static water level elevations, as reported on well logs, average around 2,500 ft (msl) and range from approximately 240 ft (msl) (Potlatch "Ridge Well") to 2,600 ft (msl) (Hoodoo Harvard Well). Another complicating factor is that the available static water level data span a period of 25 years, making it difficult to distinguish between actual differences in static head and temporal changes in water levels.

The University of Idaho's report divides the sources into three different aquifers. These are the basalt, argillite/shale, and sediment aquifers. Several different models were constructed for each aquifer. The basalt models include the Delfred Cone Well, Hoodoo Harvard Well and Onaway Well #3. Bennett Lumber South and North Wells and Potlatch Well #1 are simulated as argillite/shale aquifers. However, Potlatch "Ridge Well" is modeled separately because it is far from the other two sources and there are no test points near it. The sediment model includes the Y Trailer Court Well and Potlatch "Potlatch Well", "Ball Field Well", and "Well #4". Because the geology is quite complex in the Potlatch area, most wells are screened (or are open) in more than one aquifer. However, the source wells were modeled as fully penetrating a single aquifer based on well log data and the aquifer material from which water is believed to be derived.

Discharge from these source wells does not generally exceed 50 gpm, regardless of the aquifer material. For comparison, wells located in basalt aquifers of the Moscow-Pullman Basin produce up to 2,500 gpm (Osiensky et al., 2000).

Neighboring private wells were used for test points. Information on test points was obtained from a search of the Idaho Department of Water Resources databases available on the internet. The locations of the test points are limited to information supplied on well logs, typically the quarter-quarter section (0.625 square mile). Therefore, the accuracy of the test point elevation and the static water elevation is dependent upon the accuracy of the driller's log and the relief in the quarter-quarter section.

The capture zones delineated herein are based on limited data and must be taken as best estimates. If more data become available in the future these delineations should be adjusted based on additional modeling incorporating the new data.

The delineated source water assessment areas for the well of Cone Delfred Subdivision wells can best be described as a circle 0.4 miles in diameter (Figures 2). The actual data used by the University of Idaho in determining the source water assessment delineation area is available from DEQ upon request.

Identifying Potential Sources of Contamination

A potential source of contamination is defined as any facility or activity that stores, uses, or produces, as a product or by-product, the contaminants regulated under the Safe Drinking Water Act and has a sufficient likelihood of releasing such contaminants at levels that could pose a concern relative to drinking water sources. The goal of the inventory process is to locate and describe those facilities, land uses, and environmental conditions that are potential sources of groundwater contamination. The locations of potential sources of contamination within the delineation areas were obtained by field surveys conducted by DEQ and from available databases.

Land use within the immediate area and the surrounding area of the Cone Delfred Subdivision well is mostly agricultural.

It is important to understand that a release may never occur from a potential source of contamination provided they are using best management practices. Many potential sources of contamination are regulated at the federal level, state level, or both to reduce the risk of release. **Therefore, when a business, facility, or property is identified as a potential contaminant source, this should not be interpreted to mean that this business, facility, or property is in violation of any local, state, or federal environmental law or regulation. What it does mean is that the potential for contamination exists due to the nature of the business, industry, or operation.** There are a number of methods that water systems can use to work cooperatively with potential sources of contamination, including educational visits and inspections of stored materials. Many owners of such facilities may not even be aware that they are located near a public water supply well.

Contaminant Source Inventory Process

A two-phased contaminant inventory of the study area was conducted in May and June 2002. The first phase involved identifying and documenting potential contaminant sources within the Cone Delfred Subdivision source water assessment area (Figure 2) through the use of computer databases and Geographic Information System (GIS) maps developed by DEQ. The second, or enhanced, phase of the contaminant inventory involved contacting the operator, Mr. Delfred Cone, to identify and add any additional potential sources in the area.

Mr. Cone is a former business owner and longtime resident of Princeton, Idaho. His knowledge of the area was helpful in a more correct assessment of the well's potential for contamination. In a letter dated September 12, 2002, Mr. Cone suggested referring to sources #1 through 4 as a single site. He also said source #5 is an existing above ground storage (AST) site, and sources #6 and #7 are underground storage tanks (USTs) which no longer exist.

Mr. Cone's suggestions were applied to the rating: Sources #1 through #4 were counted as a single source, and source #5 was noted as an existing AST. Sources #6 and #7 were included in the scoring because, although Mr. Cone says they were removed and never observed to be contributing contaminants to the groundwater, they are still counted as potential sources in a historical perspective.

The delineated source water assessment areas of the Cone Delfred Subdivision well contains closed USTs, a remediated leaking underground storage tank (LUST), a superfund amendment and reauthorization act (SARA) site, and an above ground storage tank (AST) (Table 1 and Figure 2). In addition, the Palouse River, Burlington Northern Railroad, and Highway 6 exist within the delineation. The river and transportation corridors are counted as sources which can contribute leachable contaminants to the aquifer in the event of an accidental spill, release, or flood.

Table 1. Cone Delfred Subdivision, Well, Potential Contaminant Inventory and Land Use

Site	Description of Source[1]	TOT[2] Zone	Source of Information	Potential Contaminants[3]
1, 2, 3, 4	UST site (closed), LUST site (site cleanup completed; impact = unknown), SARA site, AST site	0-3 YR	Database Search	VOC, SOC
5	AST site	0-3 YR	Database Search	VOC, SOC
6	UST site; historical (closed)	3-6 YR	Database Search	VOC, SOC
7	UST site; historical (closed)	3-6 YR	Database Search	VOC, SOC
	Burlington Northern Railroad	0-10 YR	GIS Map	IOC, VOC, SOC, Microbials
	Palouse River	3-10 YR	GIS Map	IOC, VOC, SOC
	Highway 6	0-10 YR	GIS Map	IOC, VOC, SOC, Microbials

[1] UST =underground storage tank, LUST = leaking underground storage tank, SARA = superfund amendments and reauthorization act, AST = above ground storage tank

[2] TOT = time-of-travel (in years) for a potential contaminant to reach the wellhead

[3] IOC = inorganic chemical, VOC = volatile organic chemical, SOC = synthetic organic chemical

Section 3. Susceptibility Analyses

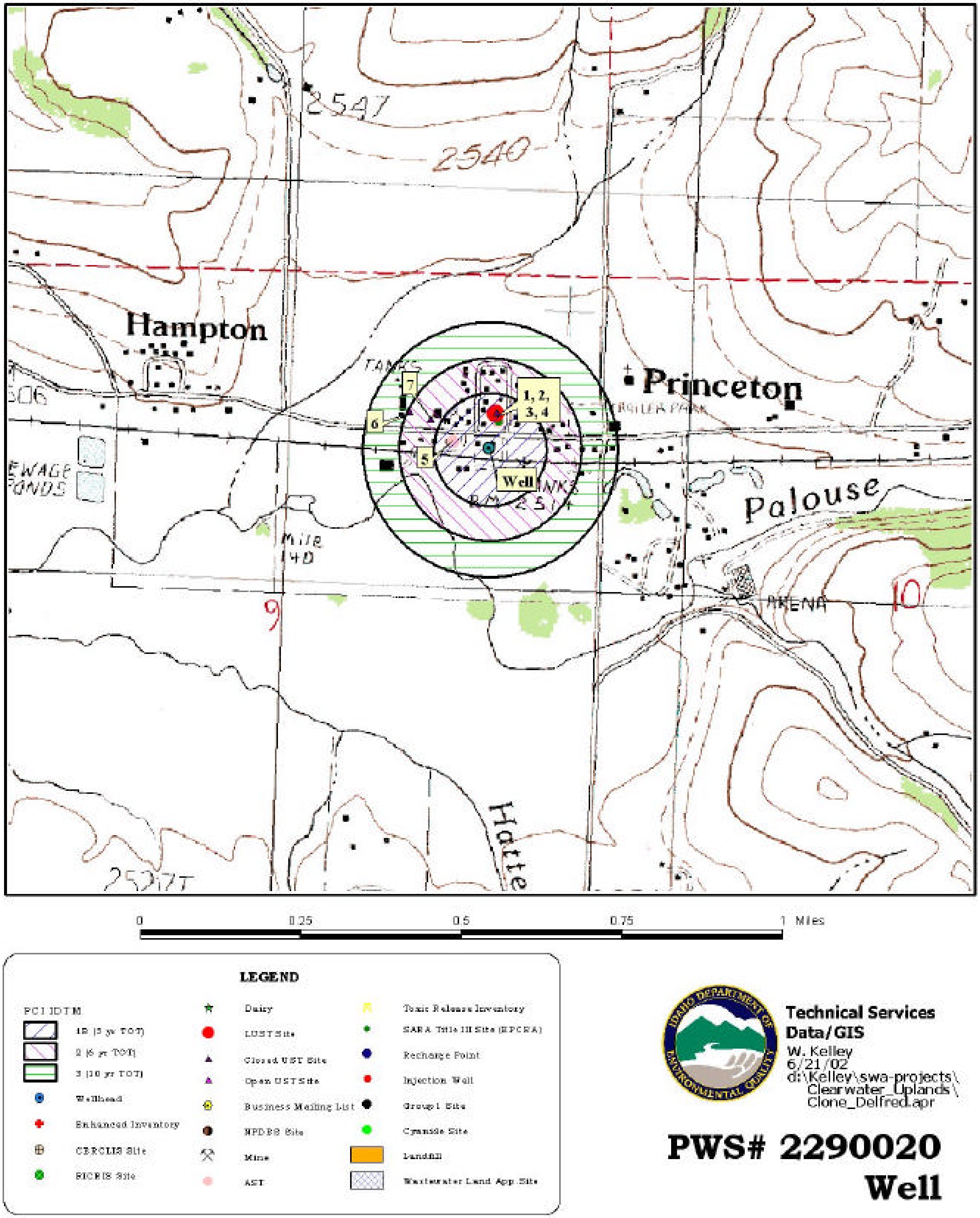
A well’s susceptibility to contamination was ranked as high, moderate, or low risk according to the following considerations: hydrologic characteristics, physical integrity of the well, land use characteristics, and potentially significant contaminant sources. The susceptibility rankings are specific to a particular potential contaminant or category of contaminants. Therefore, a high susceptibility rating relative to one potential contaminant does not mean that the water system is at the same risk for all other potential contaminants. The relative ranking that is derived for each well is a qualitative, screening-level step that, in many cases, uses generalized assumptions and best professional judgement. Attachment A contains the susceptibility analysis worksheets for the system. The following summaries describe the rationale for the susceptibility ranking.

Hydrologic Sensitivity

The hydrologic sensitivity of a well is dependent upon four factors: the surface soil composition, the material in the vadose zone (between the land surface and the water table), the depth to first ground water, and the presence of a 50-foot thick fine-grained zone (aquitard) above the producing zone of the well. Slowly draining soils such as silt and clay typically are more protective of ground water than coarse-grained soils such as sand and gravel. Similarly, fine-grained sediments in the subsurface and a water depth of more than 300 feet protect the ground water from contamination.

Hydrologic sensitivity is moderate for the well. Area soils are poor to moderately drained and there is an aquitard above the well’s producing zone, positively affecting the scores. However, the depth to first water is less than 300 feet (1 foot according to the well log), and the vadose zone therefore, is composed of soil.

FIGURE 2 -Cone Delfred Subdivision Delineation Map and Potential Contaminant Source Locations



Well Construction

Well construction directly affects the ability of the well to protect the aquifer from contaminants. System construction scores are reduced when information shows that potential contaminants will have a more difficult time reaching the intake of the well. Lower scores imply a system is less vulnerable to contamination. For example, if the well casing and annular seal both extend into a low permeability unit, then the possibility of contamination is reduced and the system construction score goes down. If the highest production interval is more than 100 feet below the water table, then the system is considered to have better buffering capacity. If the wellhead and surface seal are maintained to standards, as outlined in sanitary surveys, then contamination down the well bore is less likely. If the well is protected from surface flooding and is outside the 100-year floodplain, then contamination from surface events is reduced. A sanitary survey was conducted in 2000 for the system.

The well rated moderate for construction. It was drilled in 1981 through 200 feet of clayey sands and gravels and into 100 feet of basalt, to a total depth of 300 feet. An 8-inch diameter (.25 inch thick) casing extends from the surface to fractured basalt at 195 feet and a 6-inch (.25 inch thick) casing extends from 191 feet to 300 feet. Perforations were cut with a torch between 220 feet and 300 feet. Positively affecting the score is the fact that the well is located outside of the 100 year floodplain, its highest production of water comes from more than 100 feet below static water levels, its annular seal extends into an impermeable unit (clayey sand), and according to the sanitary survey (1998), the wellhead and surface seal are maintained. However, the casings do not extend into low permeability units and the casing thicknesses do not meet current construction standards.

Though the well may have been in compliance with standards when they were completed, current PWS well construction standards are more stringent. The Idaho Department of Water Resources *Well Construction Standards Rules* (1993) require all PWSs to follow DEQ standards as well. IDAPA 58.01.08.550 requires that PWSs follow the *Recommended Standards for Water Works* (1997) during construction. These standards include provisions for well screens, pumping tests, and casing thicknesses to name a few. Table 1 of the *Recommended Standards for Water Works* (1997) lists the required steel casing thickness for various diameter wells. An eight-inch casing requires a thickness of 0.322 inches and a six-inch casing requires a casing thickness of 0.280 inches. As such, the wells were assessed an additional point in the system construction rating.

Potential Contaminant Source and Land Use

The well rated high for IOCs (i.e. nitrates, arsenic), VOCs (i.e. petroleum products, chlorinated solvents), and SOCs (i.e. pesticides), and low for microbial contaminants (i.e. bacteria). The number and location of potential contaminant sources, as well as the amount of agricultural land within the delineations contributed to the land use scores.

Final Susceptibility Ranking

An IOC detection above a drinking water standard MCL, any detection of a VOC or SOC, or a detection of total coliform bacteria or fecal coliform bacteria at the wellhead will automatically give a high susceptibility rating to a well despite the land use of the area because a pathway for contamination already exists. Additionally, if there are contaminant sources located within 50 feet of the source then the wellhead will automatically get a high susceptibility rating. In this case, the well rated automatically high for microbials due to the four detections of total coliform in the well between March 1996 and December 1999. Hydrologic sensitivity and system construction scores are heavily weighted in the final scores. Having multiple potential contaminant sources in the 0 to 3-year time of travel zone (Zone 1B) and agricultural land contribute greatly to the overall ranking.

Table 2. Summary of Cone Delfred Subdivision Susceptibility Evaluation

Well	Susceptibility Scores[1]									
	Hydrologic Sensitivity	Contaminant Inventory				System Construction	**Final Susceptibility Ranking**			
		IOC	VOC	SOC	Microbials		IOC	VOC	SOC	Microbials
Well	M	H	H	H	L	M	M	M	M	H*

[1]H = High Susceptibility, M = Moderate Susceptibility, L = Low Susceptibility,
IOC = inorganic chemical, VOC = volatile organic chemical, SOC = synthetic organic chemical
H* = Automatic high susceptibility due to detections of total coliform in the well

Susceptibility Summary

The Cone Delfred Subdivision drinking water system consists of one well. The well was installed in 1981, and the water system currently serves approximately 40 people through 19 connections.

In terms of total susceptibility, the well rated moderate for IOCs, VOCs, SOCs, and automatically high for microbials. System construction and hydrologic sensitivity are both moderate, and land use rated high for IOCs, VOCs, SOCs, and low for microbials. The automatically high ratings are due to detections of total coliform in the well. If not for the automatic rating, the well would have rated moderate for microbials.

Section 4. Options for Drinking Water Protection

The susceptibility assessment should be used as a basis for determining appropriate new protection measures or re-evaluating existing protection efforts. No matter what the susceptibility ranking a source receives, protection is always important. Whether the source is currently located in a “pristine” area or an area with numerous industrial and/or agricultural land uses that require surveillance, the way to ensure good water quality in the future is to act now to protect valuable water supply resources.

For the Cone Delfred Subdivision, drinking water protection activities should first focus on correcting any deficiencies outlined in the sanitary survey. No chemicals should be stored or applied within the 50-foot radius of the wellhead. As much of the designated protection areas are outside the direct jurisdiction of the Cone Delfred Subdivision, collaboration and partnerships with state and local agencies, and industry groups should be established and are critical to the success of drinking water protection. In addition, the well should maintain sanitary standards regarding wellhead protection.

Due to the time involved with the movement of ground water, drinking water protection activities should be aimed at long-term management strategies even though these strategies may not yield results in the near term. A strong public education program should be a primary focus of any drinking water protection plan as the delineation encompasses urban and commercial land uses. Public education topics could include proper lawn and garden care practices, hazardous waste disposal methods, proper care and maintenance of septic systems, and the importance of water conservation to name but a few. There are multiple resources available to help communities implement protection programs, including the Drinking Water Academy of the EPA.

A system must incorporate a variety of strategies in order to develop a comprehensive drinking water protection plan, be they regulatory in nature (i.e. zoning, permitting) or non-regulatory in nature (i.e. good housekeeping, public education, specific best management practices). For assistance in developing protection strategies please contact the Lewiston Regional Office of the DEQ or the Idaho Rural Water Association.

Assistance

Public water supplies and others may call the following DEQ offices with questions about this assessment and to request assistance with developing and implementing a local protection plan. In addition, draft protection plans may be submitted to the DEQ office for preliminary review and comments.

Lewiston Regional DEQ Office	(208) 799-4370
State DEQ Office	(208) 373-0502

Website: http://www.deq.state.id.us

Water suppliers serving fewer than 10,000 persons may contact Melinda Harper, mlharper@idahoruralwater.com, Idaho Rural Water Association, at 208-343-7001 for assistance with drinking water protection (formerly wellhead protection) strategies.

POTENTIAL CONTAMINANT INVENTORY
LIST OF ACRONYMS AND DEFINITIONS

AST (Aboveground Storage Tanks) – Sites with aboveground storage tanks.

Business Mailing List – This list contains potential contaminant sites identified through a yellow pages database search of standard industry codes (SIC).

CERCLIS – This includes sites considered for listing under the **Comprehensive Environmental Response Compensation and Liability Act (CERCLA)**. CERCLA, more commonly known as ASuperfund≅ is designed to clean up hazardous waste sites that are on the national priority list (NPL).

Cyanide Site – DEQ permitted and known historical sites/facilities using cyanide.

Dairy – Sites included in the primary contaminant source inventory represent those facilities regulated by Idaho State Department of Agriculture (ISDA) and may range from a few head to several thousand head of milking cows.

Deep Injection Well – Injection wells regulated under the Idaho Department of Water Resources generally for the disposal of stormwater runoff or agricultural field drainage.

Enhanced Inventory – Enhanced inventory locations are potential contaminant source sites added by the water system. These can include new sites not captured during the primary contaminant inventory, or corrected locations for sites not properly located during the primary contaminant inventory. Enhanced inventory sites can also include miscellaneous sites added by the Idaho Department of Environmental Quality (DEQ) during the primary contaminant inventory.

Floodplain – This is a coverage of the 100year floodplains.

Group 1 Sites – These are sites that show elevated levels of contaminants and are not within the priority one areas.

Inorganic Priority Area – Priority one areas where greater than 25% of the wells/springs show constituents higher than primary standards or other health standards.

Landfill – Areas of open and closed municipal and non-municipal landfills.

LUST (Leaking Underground Storage Tank) – Potential contaminant source sites associated with leaking underground storage tanks as regulated under RCRA.

Mines and Quarries – Mines and quarries permitted through the Idaho Department of Lands.)

Nitrate Priority Area – Area where greater than 25% of wells/springs show nitrate values above 5 mg/L.

NPDES (National Pollutant Discharge Elimination System) – Sites with NPDES permits. The Clean Water Act requires that any discharge of a pollutant to waters of the United States from a point source must be authorized by an NPDES permit.

Organic Priority Areas – These are any areas where greater than 25 % of wells/springs show levels greater than 1% of the primary standard or other health standards.

Recharge Point – This includes active, proposed, and possible recharge sites on the Snake River Plain.

RICRIS – Site regulated under **Resource Conservation Recovery Act (RCRA)**. RCRA is commonly associated with the cradle to grave management approach for generation, storage, and disposal of hazardous wastes.

SARA Tier II (Superfund Amendments and Reauthorization Act Tier II Facilities) – These sites store certain types and amounts of hazardous materials and must be identified under the Community Right to Know Act.

Toxic Release Inventory (TRI) – The toxic release inventory list was developed as part of the Emergency Planning and Community Right to Know (Community Right to Know) Act passed in 1986. The Community Right to Know Act requires the reporting of any release of a chemical found on the TRI list.

UST (Underground Storage Tank) – Potential contaminant source sites associated with underground storage tanks regulated as regulated under RCRA.

Wastewater Land Applications Sites – These are areas where the land application of municipal or industrial wastewater is permitted by DEQ.

Wellheads – These are drinking water well locations regulated under the Safe Drinking Water Act. They are not treated as potential contaminant sources.

NOTE: Many of the potential contaminant sources were located using a geocoding program where mailing addresses are used to locate a facility. Field verification of potential contaminant sources is an important element of an enhanced inventory.

Where possible, a list of potential contaminant sites unable to be located with geocoding will be provided to water systems to determine if the potential contaminant sources are located within the source water assessment area.

References Cited

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Attachment A

Cone Delfred Subdivision Susceptibility Analysis Worksheet

The final scores for the susceptibility analysis were determined using the following formulas:

1) VOC/SOC/IOC Final Score = Hydrologic Sensitivity + System Construction + (Potential Contaminant/Land Use x 0.2)

2) Microbial Final Score = Hydrologic Sensitivity + System Construction + (Potential Contaminant/Land Use x 0.375)

Final Susceptibility Scoring:

0 - 5 Low Susceptibility

6 - 12 Moderate Susceptibility

≥ 13 High Susceptibility

Ground Water Susceptibility Report   Public Water System Name : CONE DELFRED SUBD   Well# : WELL

Public Water System Number 2290020   08/28/2002 4:19:47 PM

1. System Construction			SCORE			
Drill Date	01/30/1981					
Driller Log Available	YES					
Sanitary Survey (if yes, indicate date of last survey)	YES		1998			
Well meets IDWR construction standards	NO		1			
Wellhead and surface seal maintained	YES		0			
Casing and annular seal extend to low permeability unit	NO		2			
Highest production 100 feet below static water level	YES		0			
Well located outside the 100 year flood plain	YES		0			
		Total System Construction Score	3			
2. Hydrologic Sensitivity						
Soils are poorly to moderately drained	YES		0			
Vadose zone composed of gravel, fractured rock or unknown	YES		1			
Depth to first water > 300 feet	NO		1			
Aquitard present with > 50 feet cumulative thickness	YES		0			
		Total Hydrologic Score	2			
3. Potential Contaminant / Land Use - ZONE 1A			IOC Score	VOC Score	SOC Score	Microbial Score
Land Use Zone 1A	IRRIGATED CROPLAND		2	2	2	2
Farm chemical use high	YES		2	0	2	
IOC, VOC, SOC, or Microbial sources in Zone 1A	YES		NO	NO	NO	YES
		Total Potential Contaminant Source/Land Use Score - Zone 1A	4	2	4	2
Potential Contaminant / Land Use - ZONE 1B						
Contaminant sources present (Number of Sources)	YES		2	4	4	2
(Score = # Sources X 2) 8 Points Maximum			4	8	8	4
Sources of Class II or III leacheable contaminants or	YES		3	3	3	
4 Points Maximum			4	4	4	
Zone 1B contains or intercepts a Group 1 Area	NO		0	0	0	0
Land use Zone 1B	25 to 50% Irrigated Agricultural Land		2	2	2	2
		Total Potential Contaminant Source / Land Use Score - Zone 1B	10	14	14	6
Potential Contaminant / Land Use - ZONE II						
Contaminant Sources Present	YES		2	2	2	
Sources of Class II or III leacheable contaminants or	YES		1	1	1	
Land Use Zone II	Greater Than 50% Irrigated Agricultural Land		2	2	2	
		Potential Contaminant Source / Land Use Score - Zone II	5	5	5	0
Potential Contaminant / Land Use - ZONE III						
Contaminant Source Present	YES		1	1	1	
Sources of Class II or III leacheable contaminants or	YES		1	1	1	
Is there irrigated agricultural lands that occupy > 50% of	YES		1	1	1	
		Total Potential Contaminant Source / Land Use Score - Zone III	3	3	3	0
Cumulative Potential Contaminant / Land Use Score			22	24	26	8
4. Final Susceptibility Source Score			9	10	10	8
5. Final Well Ranking			Moderate	Moderate	Moderate	High